

13.3 CHALLENGES OF OVERPOPULATION

OBJECTIVES • **Relate** overpopulation to use of natural resources, energy demands, and biodiversity. • **Hypothesize** about the effect of availability of resources on population growth.

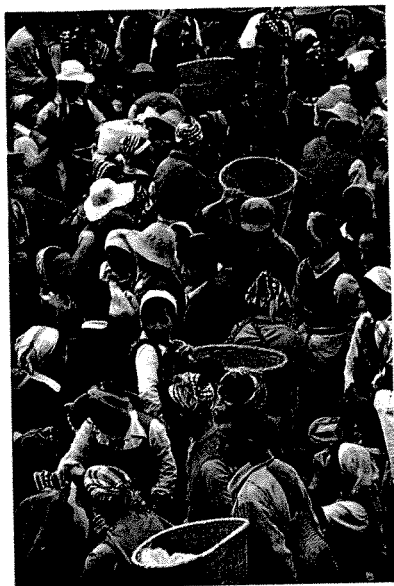


Figure 13.5 The problems of overcrowding can be seen in urban centers throughout the world. In 1970, about 37 percent of the human population lived in cities. This number is expected to climb to more than 60 percent by the year 2025.

Dateline 1873

Ellen Richards became the first woman to graduate from the Massachusetts Institute of Technology, where she was awarded a degree in chemistry. She went on to establish the first modern sewage treatment testing laboratory. She analyzed water and sewage samples in Massachusetts and helped to develop the first water quality standards in the United States. Her work helped reduce the threat of diseases such as cholera, typhoid fever, and dysentery.

Rapid population growth directly affects the global ecosystem. An increase in population places a greater demand on the space needed to sustain large numbers of people. Population growth also places a greater demand on resources, such as minerals, fuels, and food. As humans take up more space on the surface of Earth, there is less land available for the planet's other inhabitants. When this happens, it becomes difficult to convince people to give up the land and other resources they need to survive for the sake of saving wildlife.

As you have read throughout this text, however, all life on Earth is interconnected. Overpopulation and increased use of resources and energy in any country can affect other countries. Countries with growing populations may rely on the resources of other nations. Pollution from one country may affect a neighboring country.

Human health problems can be directly tied to overpopulation. The more crowding there is in a given area, the more contacts people make with other people. For example, people who live in crowded cities are exposed to more illnesses than are people in remote areas. Diseases related to malnutrition, poor hygiene, and a lack of medical facilities are also problems associated with overpopulation.

Overpopulation also causes the harmful effects of the things that people do to the environment to be magnified. For example, exhaust fumes from one car do not pose a serious threat to the environment, but those of several million cars do. Clearing a tract of land to build a house may not seem harmful in an area with several square kilometers of undisturbed grassland or forest. But building a house on the last available tract of land within an ecosystem may have a serious environmental impact, destroying the homes and breeding grounds of several species.

Controlling Population Size

It may seem obvious that controlling the birth rate is the answer to the problems of overpopulation. However, empowering people to control the number of children they have is not easy; convincing them that they *should* have fewer children is even more difficult. Forcing people to limit the size of their families is a step that most people find unethical and unacceptable.

Large-scale efforts are underway in many underdeveloped and developing countries to educate people and provide effective methods of birth control. There are many factors, however, that contribute to people's continuing desire to have children. In many religions, any effort to prevent pregnancy, other than avoiding sexual activity, is considered unacceptable. Also, many people feel that children are a source of pride and joy, and without them their lives would have little meaning. In many societies, a large number of children is considered important for helping to work the family farm or care for aging parents. Such basic cultural beliefs are very difficult to change, even if the change seems to be warranted for the common good.

In several nations, such as Bulgaria, Hungary, and Latvia, the birth rate has fallen below the death rate. Such nations face special challenges due to an aging and declining population. Decreasing numbers of soldiers and working taxpayers threaten to weaken the military and economic strength of these nations. The governments of some nations with a shrinking population offer financial support and tax advantages to encourage couples to have more children. On a global scale the human population continues to increase, but it is also aging. There will be a much higher proportion of middle-aged and elderly adults in the year 2050 than there are today.

Is Technology the Answer?

Many of the advances of modern technology have the potential to increase the resources available to humans. New sources of renewable energy, new strains of crops developed through genetic engineering, and other scientific breakthroughs could help relieve many of the problems of overpopulation. Will these solutions be adequate to meet the challenges that lie ahead?

Some researchers believe that the increasing human population is not a problem. More people implies more brain power, and technology will continue to advance. Many environmentalists, however, feel that there is a limit to the number of people that can live comfortably on Earth. Earth's ecosystems can support only a finite number of people on the planet.



Figure 13.6 The government of China strongly encourages couples to have only one child. Incentives to comply with this policy include better housing, longer vacations, and an extra month's pay each year to single-child families.

Think About It!

How do you think people in the United States would feel about the government limiting the number of children a family could have?

1. Would people feel differently if the limit was one child, two children, or ten children?
2. Explain your answer.

SECTION REVIEW

1. How can overpopulation affect human health?
2. How might overpopulation in one area affect ecosystems in other areas?
3. **Hypothesize** What effect does increasing the resources in an area have on the population in that area?